CHAPTER 4. CROP HUSBANDRY

4.3 INTER-ROW WEEDING EQUIPMENT

4.3.1. USING THE AGRIMAL AND ARARA CULTIVATORS

THE AGRIMAL CULTIVATOR

The Agrimal cultivator is supplied in its standard form, with two reversible points at the front, a left and a right-handed hiller blade and a centrally mounted 25 cm sweep (**Fig.1**).

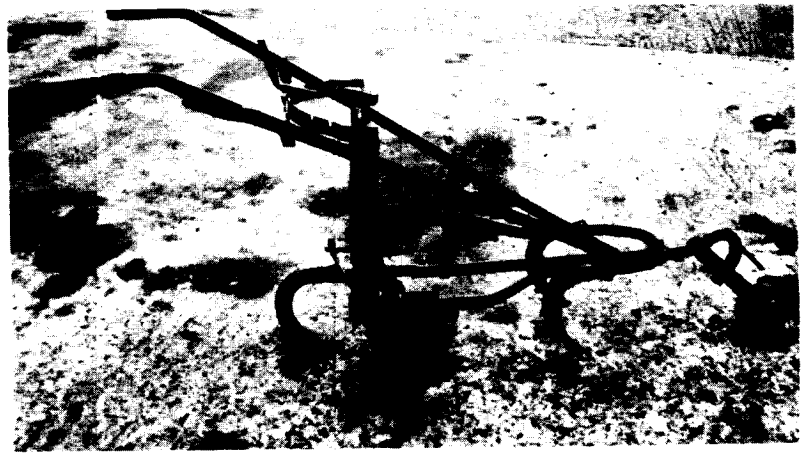

Fig. 1 The Agrimal cultivator as normally supplied in its standard form.
Photo: J.E. Ashburner

ADJUSTMENT OF THE WORKING DEPTH AND WIDTH

The front mounted support wheel may be raised or lowered to adjust the required working depth.

The working width is simply adjusted with the handle and if necessary, can be altered whilst on the move in work.

CHOOSING THE CORRECT YOKE

The point of attachment of the trek chain has no cross clevis and so the correct choice of yoke is very important. A yoke length equal to double the row width will allow a pair of animals to walk along the middle of the rows, so reducing crop damage to a minimum.

ADJUSTING THE SETTING OF THE HILLERS

The hillers may be swivelled by means of a slotted bracket. They should be adjusted in the field according to the width of the rows and so that the best hilling (ridging) effect is achieved.

THE ARARA CULTIVATOR

The multi-purpose beam of the Arara type implement may be fitted with either 3 or 5 spring tines for weeding between rows. To fit all 5 tines, the wide cross beam of 80 cm is clamped half way along the main beam and a single tine fixed towards the front. The shorter cross beam of 60 cm carries two more tines at the rear of the implement (**Figs.2 and 3**).

When working with only 3 tines, the wide centrally mounted cross beam is omitted.

Fig. 2 The Arara multi-purpose tool bar fitted with 5 spring tines carrying out early weeding in millet. *Photo: Manuel Lecca*

For weeding purposes, it is normally preferable to use duck foot shares which measure 16 cm across. They should overlap some 3 or 4 cm to ensure proper control of all the weeds which lie in the path of the implement (**Fig.3**). With 5 tines fitted, the cultivator may work in row widths up to about 90 cm, allowing for 10 cm on either side at the base of the plants. 3 tines are more suitable for working in row widths of no more than about 60 cm when only a single pass is made.

5 TINES 3 TINES

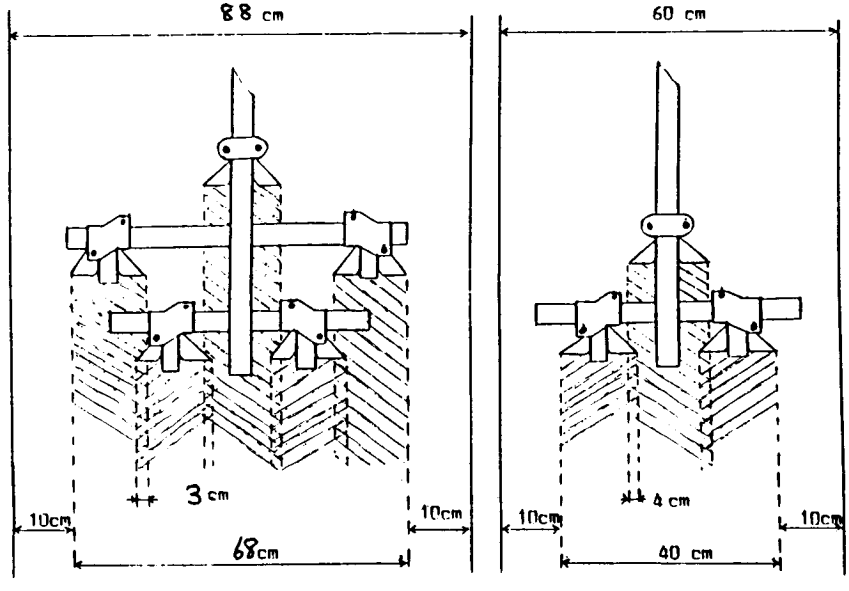

Fig. 3 Arrangement for 3 tines (left) and 5 tines (right) to work with a single pass in row widths of 60 and 90 cm. *Adapted from: Mignolet et al, 1987*

ADJUSTING THE WORKING DEPTH

- Place the cultivator on level ground and raise the support wheel to a height equal to the desired working depth;
- attach the trek chain to one of the upper holes on the vertical regulator to achieve maximum working depth;
- if the support wheel is digging in, select a lower point of attachment on the vertical regulator.

CHOICE OF YOKE AND ATTACHMENT TO THE HORIZONTAL REGULATOR

Normally when working with a pair of animals, a yoke length equal to double the row width should be chosen and the implement pulled from the centre. Weeding is then carried out in a single pass.

THE "DOUBLE RUN" METHOD OF WEEDING

Minor adjustments can also be made with the horizontal regulator so that the cultivator follows in an off-set position. For example, when weeding 90 cm rows and using the 180 cm yoke, the cultivator will need to be offset towards one of the rows for the first run. A second run is then made down the same row, offset now to the other side so that the complete inter row space is weeded. Note that no further adjustment is required on the return run, as the cultivator is already offset.

This method of weeding is particularly useful when working with a single animal and with the cultivator fitted with only 3 tines. It is known as the "double run" method of weeding (**Fig.4**).

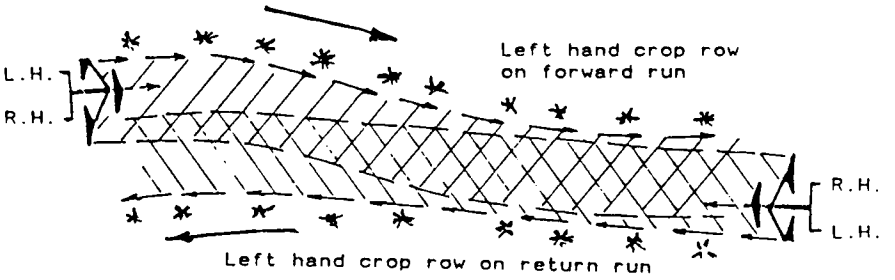

Fig. 4 Illustration of the "double run" method of weeding widely spaced rows with a small weeder. *Source: Inns, 1990*

CARE AND MAINTENANCE OF CULTIVATORS

The cultivator should be checked and maintained in a similar manner to the plough and ridger, as already described in previous Modules. Pay particular attention to the wear which occurs on the working shares. Once the duck foot points on the Arara cultivator and the reversible points and the sweep on the Agrimal cultivator become badly worn, weeding efficiency is greatly reduced.

Check regularly the condition and the setting of the hiller blades on the Agrimal cultivator. Also regularly check for distortion of the tines and repair them as necessary.